BROADBAND FEASIBILITY STUDY

Broadband Feasibility Study

Prepared for:
Indian River County, FL
Attn: Dan Russel
Chief Information Officer

Prepared by: Kyle Hollifield
Magellan Advisors
Khollifield@magellan-advisors.com
276-591-6801
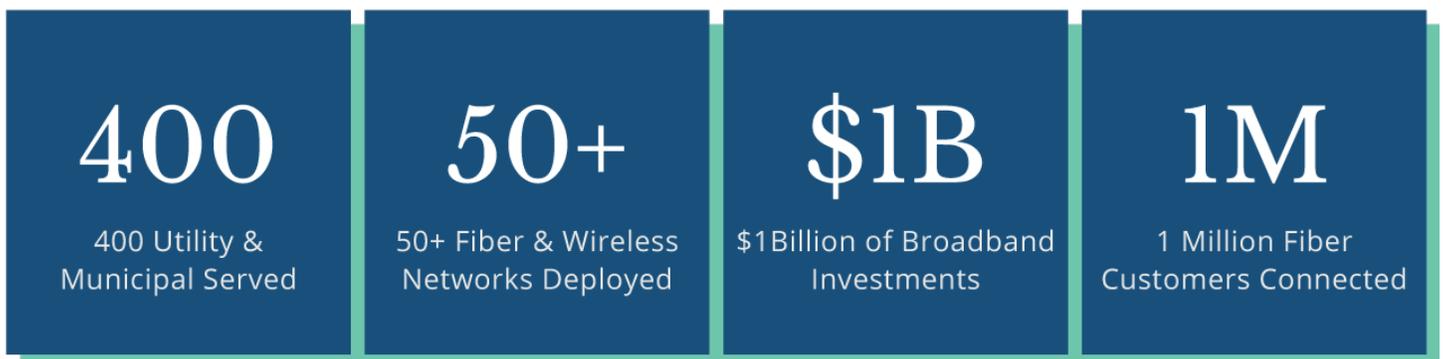www.magellan-advsors.com

Magellan
ADVISORS

COMPANY OVERVIEW

Magellan Advisors, LLC is a Denver-based firm with regional offices in Miami, Los Angeles, and Kansas City. Magellan's primary address is 999 18th Street, Suite 3000 Denver, CO 80202. Magellan's web address is www.magellan-advisors.com. Magellan Advisors, LLC was founded in January of 2004 and has been in operation as a Limited Liability Company since inception.

Magellan provides industry leading fiber and wireless broadband planning, turnkey design and engineering, and project and construction management to public and private organizations. We are a full spectrum planning and implementation firm that brings together technology, communications and utility consulting to create smart gigabit cities of tomorrow.

Our professionals bring years of experience from the broadband, telecom, information technology and government sectors. We are thought leaders and real-world implementers of broadband and smart city networks that keep communities competitive in the digital world. Unlike most consulting firms, we partner with our clients every step of the way, whether they are deploying institutional fiber networks, developing broadband public-private partnerships or deploying Smart City networks. We are a "hands-on" firm with strong project management abilities and implementation skills to see our clients' projects through from concept to completion.

We are only successful when our clients are successful. Our goal is to deliver practical broadband and technology solutions that our clients are capable of implementing in their communities. Our combination of unmatched broadband, telecom, business and operational experience creates actionable strategies that communities use to realize their broadband and Smart City objectives. We have led the planning, funding, construction and management of over 50 fiber-to-the-premise networks passing over 1 million homes and connecting more than 1,000 schools, hospitals, government offices and community organizations. Our work has resulted in over $1 billion in new broadband investments nationwide. Magellan has helped more communities successfully plan, implement and manage gigabit broadband networks than any other firm in the market.

400	50+	$1B	1M
400 Utility & Municipal Served	50+ Fiber & Wireless Networks Deployed	$1Billion of Broadband Investments	1 Million Fiber Customers Connected

Comprehensive Broadband Planning & Implementation Solutions

Broadband Planning

Fiber master plans, business plans and implementation roadmaps that give you real-world guidance and results you can count on when deploying fiber and broadband.

Learn more →

Feasibility Studies

Honest, unbiases and independent advice from the firm that has more experience implementing fiber and broadband networks.

Learn more →

Grants & Funding

Funding strategy, grant writing and compliance for all major federal and state fiber and broadband grant programs.

Learn more →

Design Engineering

Cutting edge fiber and broadband engineering to connect more sites, more devices and more customers at the speed of light.

Learn more →

Turnkey Implementation

A single, trusted partner to manage your entire network implementation, with over 50 fiber and broadband deployed networks across the US.

Learn more →

Construction Management

We manage the entire construction process to ensure your fiber and broadband networks are built to specification and your construction standards are followed, while minimizing impact to the community.

Learn more →

Network Management

We take the heavy lift out of managing fiber and broadband networks by providing centralized resources to provide monitoring, tech support and emergency repairs.

Learn more →

Retail ISP Services

LightSpeed, powered by Magellan Advisors serves your community with fast, reliable and affordable internet services, built on a culture of delivering superior service.

Learn more →

Project Experience

CUSTOMER	ST	BROADBAND PLANNING					ENGINEERING			TURNKEY IMPLEMENTATION					
		FEASIBILITY STUDY	FIBER MASTER PLAN	BROADBAND BUSINESS PLAN	GRANT DEVELOPMENT	BROADBAND POLICY	ENGINEERING DESIGN	PERMITTING	PROCUREMENT	CONSTRUCTION MANAGEMENT	CONSTRTUCTION INSPECTIONS	STARTUP & LAUNCH	OPERATIONS & MANAGEMENT	SALES & MARKETING	BROADBAND EXPANSION
City of Jupiter	FL	●			●		●		●	●		●		●	
City of Palm Coast	FL	●			●		●		●	●		●		●	
City of Clermont	FL	●			●		●	●	●	●		●		●	
Lakeland Utilities	FL			●	●										
City of Jupiter	FL	●			●		●		●	●		●		●	
City of Palm Coast	FL	●			●		●		●	●		●		●	
City of Winter Park	FL	●	●		●		●								
City of Winter Haven	FL	●			●		●								
City of Bartow	FL	●			●		●								
Orlando Utilities Commission	FL	●													
City of Winter Garden	FL	●			●		●								
City of Palm Beach Gardens	FL						●								
City of Sunrise	FL						●								
City of Clermont	FL	●			●		●	●	●	●		●		●	
City of Fort Lauderdale	FL	●	●		●		●								
City of Lakeland	FL	●			●		●								
Charlotte County	FL	●			●		●								
Seminole County	FL	●			●		●								
Hendry County	FL	●		●	●										
Babcock Ranch	FL			●											
Town of Longboat Key	FL		●												
Escambia County	FL	●													
Hendry County	FL	●		●											
Glades County	FL														
City of Cape Coral	FL			●											
City of Gainesville	FL			●											

Project Understanding and Approach

Our objective is to determine low cost and effective ways for Indian River County to improve the local broadband environment for the benefit of its communities. Our approach to this project will be to first assess the existing environment so we have a clear understanding of broadband supply and demand in the various communities, paying specific attention to the broadband environment in rural and underserved Indian River County. Next, we will identify key broadband issues and gaps that impact your residents, businesses, schools, healthcare organizations, business and industry. We will also assess your economic and community development, smart city and IoT strategies that likely require high-speed broadband as part of their foundation. This information will be used to create a broadband needs assessment for the County to give you an understanding of the broadband services that will be required for you to fulfill your objectives.

Based on this information, we will provide you with a range of options to improve the broadband environment based on the infrastructure assets, resources and public policy tools that you have available to you. We will provide you detailed analysis of these options based on:

1. Alignment with Indian River County's vision and priorities
2. Benefits to each community
3. Total costs to the County and options for Funding including Grant/Loan
4. Long-term financial sustainability
5. Operational requirements
6. Technology risk
7. Participation of service providers
8. Competitive risk
9. Control
10. Probability of overall success

Based on these criteria and others that we may learn about from your communities, we will provide you with the most feasible options, recommendations and a roadmap that gives you step-by-step instructions and strategies to implement the most desirable option(s). We will accompany this with the documentation and data to validate this option(s) and a next-steps plan for you to consider adopting at the end of the project. As we work through the project with you, we will share our findings along the way, so you're involved in the strategy development alongside us, ensuring the strategies that we develop for you are relevant and achieve the needs of your communities.

SCOPE OF WORK

TASK 1: PROJECT KICK OFF

Magellan's team will initiative the project with a formal project kick-off meeting with the Indian River team. The purpose of this meeting is to review and update the project plan to ensure alignment of our team with yours and that the final deliverables will meet your expectations. During the meeting we will collect information from the county about past broadband studies and initiatives.

Magellan's project team will meet on a bi-weekly basis with Indian River's project team to discuss the status of the project, major milestones and deliverables, and ensure alignment on project goals. Our team will lead these meetings including providing meeting agendas, preparing meeting handouts, and taking notes to prepare meeting minutes.

TASK 2: CURRENT ASSESSMENT AND MARKET DEMAND

Competitive Market Assessment

Magellan will work with the County to determine the current broadband environment, including updated maps of broadband availability, speeds and providers. The competitive market assessment will determine the services that are available, providers, service level, pricing, and access. We will document all publicly owned and privately-owned networks in the communities and build a comprehensive GIS-based broadband map to illustrate how the County are served by broadband and what providers currently serve the market. We will include details on all download and upload capacity and inventory on all physical transport. Through our survey tool we will provide speed testing tools so that residents, community anchors and businesses can report ACTUAL SPEEDS and experiences, versus what is advertised on providers' websites.

We will provide you with a graphical and visual representation of the current market, based on the survey and data collected for the market. This graphical representation will give you unique and valuable data on the actual broadband market in Indian Riverso you can understand the following:

1. Actual speeds that residents, anchors and businesses are receiving
2. Actual pricing that residents, anchors and businesses pay for services
3. Territories for providers operating in each community
4. Customer satisfaction levels with broadband providers
5. Key issues that impact customers across the County
6. Identify Underserved and Unserved areas

Magellan will then use this information to measure current and future demand for broadband services for the County using a combination of market research and survey tools, interviews and focus groups with local stakeholders and data collected across the community.

Needs Assessment

This assessment will first evaluate the County's needs for current and future broadband infrastructure. We will help you assess the benefits gained by equipping your infrastructure assets with fiber and wireless connectivity to support many growing municipal and community needs. Magellan will help you determine the broadband

needs of the community, including small businesses, large businesses, enterprises, community anchors and residents. We believe that you should gain a fundamental understanding of demand for broadband services in the County, levels of digital literacy among users, and perceived value of service to determine the overall level of need today and in the future.

This demand is a key driver of the overall business model and financial sustainability of a potential project. In other projects, Magellan has been able to aggregate demand from these stakeholder groups to support overall feasibility of proposed broadband networks. We will work with you to organize the best way to assess needs and identify demand in the community. This process generally involves outreach with stakeholder groups to learn about specific broadband and technology needs and an online survey. The outreach may include:

- **Public/Municipal Outreach:** municipal leaders across the County including IT, public works, finance and leadership as well as other important department leaders throughout the County and its communities.
- **Private Providers:** Magellan will hold one-on-one interviews with private retail and cellular providers allowing them to share information on their current network, expansion and upgrade plans and willingness to partner with the County to better serve its communities.
- **Anchors and Enterprise Businesses**. We suggest scheduling one-on-one and group meetings with your large broadband users, including schools, hospitals, regional government organizations and large enterprise businesses
- **Businesses:** Magellan recommends conducting focus groups with small and medium businesses that are representative of the greater Indian River County business community.

Magellan will use the data collected from all outreach meetings and surveys to compile a "state of broadband" in Indian River County. We believe that this data is essential to start the project off successfully. Magellan will depend on the assistance and participation of Indian River County's team to achieve effective meetings and results.

TASK 3: EVALUATE COUNTY'S CURRENT BROADBAND NETWORK CAPABILITIES

We will conduct a comprehensive asset inventory of the County's current network and public assets to determine its usefulness for new broadband applications. This assessment will give Indian River realistic assessment of the any current capabilities and opportunities to use it as a foundation for future broadband programs. We believe that the following components should be analyzed at a minimum:

- Underground conduit, innerduct, empty and available conduit
- Fiber cables, strand counts, splice points, terminations and utilized strands
- Vault and handhole locations
- Towers and Vertical Assets
- Available and reserved capacity throughout the network
- Construction and placement method policies
- Current as-builts and documentation
- Terminating locations and County facilities

- County GIS maps including County-owned property, right of way, easements

We will evaluate the network's capabilities for meeting the needs of the residents, businesses and anchors in Indian River County and determine how the bandwidths and speeds, performance, redundancy and scalability requirements and solution-specific requirements for businesses and residents of Indian River County will be met.

Magellan will provide the County with a comprehensive report on the network and accompanying GIS files. This report will provide the inventory of available broadband assets that the County should consider formalizing into its broadband program as it develops.

Fiber Asset Gaps

Magellan will examine any gaps in the County's current fiber network and identify opportuntities to create additional redundant, diverse fiber rings in the County to support internal needs and expanded broadband and cellular service. Magellans team will pay particular attention to lack of redundant routes to County facilities. We will analyze these layers in GIS as well as documented through needs assessment and provide the County a gap analysis that lays out where additional routes and capacity are needed to support current and future connectivity.

Policy

Magellan will engage public works and review the County's current policies and capital improvement projects that could impact or enhance broadband including dig once, ROW access and joint build opportuinties including those with FLDOT. We will provide the County with best practices and "broadband friendly policy" guidelines that will enhance broadband and cellular service opportunities in the County.

TASK 4: GAP ANALYSIS

Using data from our initial analysis and sources such as the Federal Communications Commission (FCC) , we will conduct a gap analysis to identify unserved and underserved locations within the County. Using our national fiber infrastructure database and industry contacts, Magellan will also document privately-owned broadband networks and build a comprehensive GIS-based broadband map to illustrate how the Couty is served by broadband and what providers currently serve the market. Our analysis will also include gaps in cellular service and cellular towers.

We will incorporate the data into our mapping tools, which will allow us to conduct a gap analysis indicated by areas that have a need for broadband but currently lack the necessary infrastructure. This analysis will better inform the County which areas should be prioritized should the County decide to proceed with a broadband initiative. This will inform our analysis of the business case and whether demand exists for additional broadband offerings in the region.

TASK 5: NETWORK DESIGN

Based on the mapping information and an understanding of community needs across the Indian River County, Magellan will develop a conceptual design for fiber covering the city creating a strategic growth plan for the County's municipal fiber network. Magellan's team will leverage as much of the County's current fiber, poles, vertical assets that could reduce construction and overall costs for the County. The fiber design will provide key

outside plant aspects for construction of core fiber backbone, distribution and access within the County including:

- Fiber Laterals to Key Organizations - will connect community anchor organizations to the fiber backbone, providing multi-gigabit connectivity to schools, hospitals, government offices, public safety facilities, cellular towers, utilities, cooperatives and other key facilities. It will include all outside plant fiber assets and network elements to connect facilities to the network.
- Fiber-to-the-Home (FTTH) Distribution/Access - will provide dense fiber distribution to homes and businesses within the County, enabling individual users to connect to the network. FTTH distribution will include outside plant fiber, distribution huts, splitter cabinets and other distribution elements to connect end users to the network for fiber-to-the-home broadband services.
- High-Level Wireless Design - For areas inside and outside the County zone where fiber may not be economical or were wireless provides a better solution, Magellan will develop wireless distribution networks that will connect individual communities to the fiber backbone. Wireless networks will need to provide a minimum of 25/3 broadband service to communities. Wireless designs will include locations and type of equipment required, potential tower locations, determination of new tower builds versus tower leasing and assessment of any potential public facilities, rooftops, towers and other resources that could be used for wireless distribution.
- Other Technologies – Magellan will explore other technologies that could be benefitial for the County's broadband expansion including Satelite, 5G and others.

TASK 6: COST SUMMARY AND DETAILS

Based on the conceptual high-level routing, Magellan will provide estimates to the Indian River County for the cost of network construction, including full low-level detailed design, construction, equipment, testing and certification as well as ongoing annual costs to operate and maintain the network. Based on this information Magellan will build possible payback business models based on a public/private partnership. In addition, all backhaul options will be reviewed to identify the most optimal routes out of Indian River, and to identify potential interconnect points to regional Points of Presence (PoPs). Our significant work managing broadband construction projects will allow for more accurate estimation of the costs the County will bear in this process.

TASK 7: FINANCIALS AND FUNDING SOURCES

Magellan proposes using our Broadband Financial Sustainability Model to ensure that Indian RiverCounty has a full understanding of the business and financial sustainability of various broadband initiatives. Using these tools will allow Indian Riverto evaluate different business models and make informed decisions on which are most adequate for the County and community – including environments that require no funding.

Our financial models have been specifically developed for broadband utilities and are very similar to electric utility rate studies. Our models are widely used tools to model feasibility and financial performance for over 50 municipal broadband providers. Magellan's financial modeling tools have been utilized to plan and manage broadband network investments for over $500 million in broadband projects nationwide.

Magellan will also screen and identify feasible grant and loan programs for Indian River, including rural and non-rural opportunities. Our analysis will look at the federal FCC, USAC, EDA, HUD and USDA programs as well as State of Florida programs that fund such projects. We will

identify the program size, details, qualifications, requirements and other key information for the County to determine the opportunity to fund some of its service area with federal or state funds.

Based on the financial analysis, we will be able to provide the following information to the County to determine the best vehicles and organizational structures to be used for the project. Some of the areas we will analyze include:

- State and federal grant programs
- Joint build and joint contribution projects
- Organizational structures available, for profit, non-profit, economic development corporations, joint powers authorities and joint ventures
- Public/private contribution models
- Total amount of funding needed for the project
- Capital versus operational funding needed for the project
- Funding term, identifying short-term and long-term portions of funding
- Optimizing public and private funding sources

TASK 8: REGULATORY REVIEW

Magellan's staff of experts maintains knowledge on the current and relevant direction of all aspects of broadband and fiber technology including legal, regulatory, and technical aspects. Using this expertise, Magellan will analyze and report on the current regulatory environment in the state of Florida and how it will impact Indian River County in developing a broadband network. Magellan has performed recent regulatory assessments for communities across the US and Southeast including most recently Escambia County, FL .

TASK 9. RECOMMENDATION AND BROADBAND ROADMAP

The culmination of the study will lay out the core strategies for Indian River County in development of its municipal and community broadband initiatives. The study will craft the most effective strategies for the County to adopt to bring next-generation broadband to its community, leveraging the County's infrastructure, smart public policies and key partnerships among public and private organizations. Magellan will provide a final Broadband Assessment and Feasibility Study that details recommendations with actionable steps for Indian River County to expand broadband and fiber infrastructure.

PROJECT TEAM

Kyle Hollifield - Executive Vice President

Kyle Hollifield is a 35-year veteran of the telecommunications industry serving in senior management positions with Alcatel and Standard Telephone and Cable, the first company to deploy under ocean fiber optics from Europe to North America. Kyle most recently has held the position of Vice President of Business Development and Marketing at Bristol Virginia Utilities Authority (BVU), while managing the FOCUS division providing consulting services to other communities wishing to build or improve high speed broadband networks. Kyle has served on the Board of Directors of The North American Fiber to the Home Council, most recently as Chairman of the Board of Directors. Kyle also serves as Vice-Chair of Broadband Communities Magazine and has made many presentations on broadband policy and opportunities to the FCC, RUS, NTIA, NATOA, APPA, National League of Cities, Rural Telecom Cooperative, FTTH, Broadband Communities and NCTC. Kyle holds degrees from the University of Tennessee in Business and Marketing.

Ashley Poling - Project Manager

Ashley has been a member of the Magellan Advisors team since 2014, serving in various roles including business development, marketing, project support, strategy and project management. She has been integral in supporting Magellan to source business through leading the company's request for proposal and proposal process. Ashley now supports the Executive Team in project management, client engagement and deliverable development. She has participated in over 50 broadband planning projects for local government and public utility clients. She leads stakeholder outreach sessions, develops needs analyses and state of broadband profiles for clients, assists in grant funding research and writing and leads clients in developing marketing programs for successful network launches. Ashley has a BA degree in Education with a minor in Political Science from Ohio Wesleyan University.

Greg Laudeman - Consultant

Dr. Greg Laudeman is a leader in innovative, talent and technology-based economic development strategy, research, and implementation. Since 2015 he has managed broadband projects for Magellan with a keen eye for the economic opportunities that state of the art broadband availability brings to communities. With over 30 years of experience working in technology and tech startups, Greg brings a diverse background to community broadband to support economic development. Greg's diverse experience as an analyst, communicator, facilitator, and organizer has always focused on how technology can make communities and organizations more competitive, innovative, and productive. For over a decade Greg led community technology outreach efforts for the Georgia Tech Enterprise Innovation Institute. Greg has a doctorate in Learning and Leadership from the University of Tennessee at Chattanooga, has master degrees in Public Policy from Georgia Tech and Telecommunications from Michigan State, and a bachelor degree in Mass Communication from UTC.

Jessica Zufulo - Vice President of Rural Broadband Strategy

Jessica joins Magellan after serving in various senior leadership roles throughout federal government and non-profit sectors for over 20 years. Prior to joining Magellan, Jessica served for over five years as the Senior Advisor for Strategic Partnerships for the Lifeline Division at the Universal Service Administrative Company (USAC) where she managed all state, federal and tribal engagement that led to the establishment of the Lifeline National Eligibility Verifier. Prior to her tenure at USAC, Jessica was appointed to serve as the Deputy Administrator for the Rural Utilities Service (RUS) at the U.S. Department of Agriculture (USDA) where she helped oversee a $65 billion federal loan and grant portfolio that finances water systems telecommunications and broadband networks, precision agriculture, electric utility, smart grid and renewable energy projects in rural and tribal communities. Jessica also served as the Legislative Director for the National Association of Regulatory Utility Commissioners (NARUC) where she was responsible for developing legislative strategy for all 50 state public service commissions involving telecommunications, technology, consumer protection and water. Early in her distinguished career, Jessica worked on Capitol Hill for eight years overseeing telecommunications and energy policy. Jessica earned her MBA with Honors from the University of North Carolina at Chapel Hill and a BA in military history and political science from the University of Colorado in Boulder.

Mike Johnson - Senior Consultant

Mike has over 30 years of extensive experience in wireless communications and broadband data network design. He uses his extensive history and knowledge to assist clients in accomplishing project planning and deliverable essential to deploying successful communications and data systems. His strengths include program management, requirements gathering, field test engineering, equipment evaluation, engineering management, and analyzing complex design conceptions. He has also designed wireless broadband equipment for Point to Point, Point to Multipoint and Mesh Radio Networks. Mike holds 4 patents on spectrum sensing, channel coordination, and dynamic location information. He also has current certifications in FTTx architecture, Fiber Plug and Play modules, and FTTx link budgets. Mike holds a Bachelor of Science in Electrical Engineering from the University of Florida.

Mark Lane - Technical Consultant

Mark Lane has over 30 years of experience in enterprise IT, carrier network operations, and technology consulting. While serving as CTO for Bristol Virginia Utilities OptiNet, he helped provide the strategic direction and practical implementation responsible for their fiber-to-the-premise (FTTP) network build-out and broadband service deployment for eight counties in Southwest, VA. His vision and leadership contributed to Bristol, VA being selected as an Intelligent Community Forum Top 7 Intelligent City in 2009. Mark received a bachelor's in computer science from the University of Tennessee.

Matthew Southwell - Associate Project Manager – Design

Matthew Southwell has over 13 years in the telecommunications field. Matthew's career began as a U.S. Army Sergeant where he worked on tactical communication systems, Sat-Com radio systems, and deploying weekly COMSEC key changes OTAR (Over the Air Rekeying) with newly deployed radio systems during two Operation Enduring Freedom deployments. Matthew's private sector work includes work with a Motorola radio distributor and contractor where he supported many Federal, State, and local County entities to include: Department of Homeland Security, Immigration and Customs Enforcement, Drug Enforcement Administration, Florida Highway Patrol, Greater Orlando Airport Authority, Orange County Sheriff's Office, and the Lake County Sheriff's Office. Matthew joined Magellan Advisors in 2016 as a telecommunication analyst where he has contributed his knowledge and technical expertise to over 65

broadband projects. Matthew's current role within Magellan includes analysis of client GIS data and mapping, creating conceptual network designs and costing estimates for future fiber builds. Matthew is a Certified Fiber to the Home Professional (CFHP) and holds a Business Management Degree with High Honors from Keiser University in Orlando, FL.

Gillian Violette Ed.D. - Research Analyst

Gillian has over a decade of experience working in business management and sales in fields of pharmaceuticals, hospitality, insurance, and training and development. She has experience in managing human resource related functions, staffing, and project management. Gillian joined the Magellan team in the capacity of research, publication, and quality assurance in reporting. She holds a doctoral degree in Educational Leadership where her research focus was related to broadband Internet in K-12 schools and the digital divide, an MBA in Business Administration, and a BS in Business with a minor in Human Resources.

PROJECT TIMELINE

Our team will conduct a formal kick-off meeting and meet with the County Project team on a biweekly basis.

*Deliverable   X X Milestones

Description	1	2	3	4
1. Project Kick Off	X			
2. Current Assessment and Market Demand	X	X	*	
3. Evaluate County's Current Broadband Network Capabilities	X	X	X	
4. Gap Analysis				X
5. Conceptual Network Design				
6. Cost Summary				
7. Regulatory Review			X	
8. Financing and Funding			X	X
9. Final Report and Presentation				*

COST

The total cost to Indian River County for the Broadband Study is a $74,500. Includes all work to be completed by Magellan as stated in this proposal and any required travel costs.

Magellan will bill in five (5) equal amounts. Invoices are payable on net 30 terms from the date of invoice. . All rates will be in accordance with the City of Clermont CSA Agreement at the rate of $150 an hour. Travel and Incidentals will be billed as incurred.

Magellan Advisors commits to working closely with the County to ensure a thorough study.

Estimated Costs
$74,500

SIGNATURE & ACCEPTANCE

MAGELLAN ADVISORS, LLC.   **INDIAN RIVER COUNTY**

Print Name: Kyle Hollifield   Print Name:

Title: VP of Marketing   Title:

Signature: Signature:

Date: 4/29/2021   Date: